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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,472	10/01/2003	Yasuhiro Nakai	2018-784	5507

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EXAMINER

COLON SANTANA, EDUARDO

ART UNIT PAPER NUMBER

2837

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/674,472	Applicant(s) NAKAI ET AL.	
	Examiner Eduardo Colon-Santana	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-14 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/01/2003</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 10/01/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Branecky U.S. Patent No. 6,653,811.

Referring to claims 1 and 3, Branecky discloses an apparatus and method for aligning the rotor of a switched reluctance motor as claimed (see all figures and respective portions of the specification). Branecky further discloses in figure 1, a SR motor (10) having a rotor (14) and an encoder (not shown) see Abstract.

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Furthermore, Branecky describes in figure 2 a motor control (100) having control means (168, 184 and 176) being a regulator, an energizing circuit and a selecting circuit respectively that rotate the rotor to a target position after detecting the rotation position of the rotor on the basis of a count of the pulse signal counted by an encoder (not shown) to sequentially switch one or two current supply phase (1, 2 or 3) of the motor (10). In addition when the rotor having a rotational angle is not aligned correctly during a deactivation phase, the above mention control means correct the current supply phase with respect to the rotation phase of the rotor in accordance with the rotation speed (oscillation) of the rotor and angle (see Abstract, Col. 4, line 59 to Col. 6, line 34 and Col. 7, lines 55-65).

As to claim 2, Branecky mentions a reduction of the duty cycle (deceleration control) results in less current flowing through one phase, therefore a weaker magnetic field is produce on the rotor as the speed lowers so that the rotor pole moves gently into alignment with the stator pole (see Col. 7, lines 55-65).

Referring to claim 4, Branecky mentions that motor control (100), includes a selecting circuit (176), which determines by means of current supply phases, two of the phases (1, 2 and 3) to energize in order to align the rotor (14) to a desired position, on the basis of the encoder count (not shown), when the encoder is homed (188) after a known rotor position or aligned position. Furthermore, Branecky discloses means (184) to provide a duty cycle, which corrects the phase lead of the current supply phase in accordance with rotational speed of the rotor (see Col. 5 and Col. 6).

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As to claim 5, Branecky discloses that the motor is a switched reluctance motor.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being obvious over Branecky in view of Yamada et al. U.S. Patent No. 6,230,576.

Referring to claim 6, Branecky addresses all the limitations mention in claim 1 above, but does not explicitly describes the switched reluctance motor driving a position switching mechanism for switching a gear shift position of an automatic transmission of a vehicle. However, Yamada et al. discloses an electrically driven position changing apparatus having an electric motor (16), being of a brushless type or reluctance type mounted on the automatic transmission (2) for driving the shift range changing mechanism (14) (see Col. 2, lines 35-55, and figure 2). Since Branecky and Yamada et al. both disclose a motor of a reluctance type, the purpose disclosed by Yamada et al. would have been recognized in the pertinent art of Branecky. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a switched reluctance motor for switching a gear shift position as taught by Yamada et al. within the teaching of Branecky for the purpose/advantages that since

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switched reluctance machine are singly excited with a different number of poles on the stator and rotor this enables only one stator phase to be aligned at a time with the rotor, improving the drive of a position switching mechanism in a more precise way.

Allowable Subject Matter

5. Claims 7-14 are allowed.

6. The following is an examiner's statement of reasons for allowance:

Claim 7: In view of the limitations, the prior art does not disclose or suggest a motor control apparatus for switching a manipulated position of a position mechanism having a rotational angle detecting means, switching determining means and switching determination range setting means to make the switching determination range wider in a period when current supply to the motor is kept off than in a period when current supply to the motor is on.

Claim 8: In view of the limitations, the prior art does not disclose or suggest a motor control apparatus for switching a manipulated position of a position mechanism having a rotational angle detecting means, learning means, switching determining means and switching determination range setting means to make the switching determination range wider before completion of the learning of the operation reference position than after completion of learning of the operation reference position.

Claim 10: In view of the limitations, the prior art does not disclose or suggest a motor control apparatus for switching a manipulated position of a position mechanism having a rotational angle

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detecting means, ordinary control means, fail-safe control means, switching determining means and switching determination range setting means to set the switching determination range to different ranges during execution of the fail-safe control.

Conclusion

7. The prior art made of record in form 892 and not specifically relied upon is considered pertinent to applicant's disclosure to further show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon-Santana whose telephone number is (571) 272-2060. The examiner can normally be reached on Monday thru Thursday 6:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Martin can be reached on (571) 272-2800 X.37. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center at 866-217-9197.

ECS
April 5, 2005


MARLON FLETCHER
PRIMARY EXAMINER